



<http://www.epa.gov/naturaldisasters/flyinglab.htm>

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## Natural Disasters and Weather Emergencies

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### Air Monitoring Equipment

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#### Trace Atmospheric Gas Analyzer (TAGA) Bus

In response to a disaster, EPA uses a self-contained mobile laboratory to monitor air quality. The mobile bus, named Trace Atmospheric Gas Analyzer (TAGA), is capable of real-time sampling and analysis. It can detect chemicals at very low levels. TAGA also has specialized sampling equipment to use at remote locations and to measure air quality. The TAGA aids EPA's efforts to rapidly identify and address potential environmental threats in disaster areas.



#### ASPECT: EPA's Flying Laboratory

A partnership between EPA and the U.S. Department of Defense has led to development of equipment mounted in a small aircraft that can obtain detailed chemical information from a safe distance. The equipment - Airborne Spectral Photometric Environmental Collection Technology (ASPECT) - is an emergency response sensor package operated by EPA. It provides first responders - emergency workers on scene - with information on possible chemical releases. ASPECT has been used by seven of the 10 EPA regions for 25 separate response actions. They include monitoring the 2002 Winter Olympic Games, numerous fires, the Columbia shuttle recovery, and hurricane damage.



The Aero Commander 680 twin-engine seats two pilots plus surveillance equipment.

#### How It Works

ASPECT consist of sensors mounted in an Aero Commander 680 twin-engine aircraft. It can detect chemicals and several different radiological materials. ASPECT is also capable of collecting high-resolution digital photography and video and can take thermal and night images by using instruments that track differences in heat below the airplane.

It is equipped with a Global Positioning System and uses navigation data to match photographic and infrared information with physical locations. This allowed EPA staff members to find and electronically tag the location of debris as small as one square foot during recovery of the Columbia shuttle wreckage.

Quick delivery of chemical data to first responders is an important requirement of an emergency response. All information ASPECT collects can be sent to a ground unit using a wireless system.

ASPECT can also be used for nonemergency projects, including aerial photography, thermal imaging and radiation surveys. Activation of the system can be coordinated through the program manager.

The aircraft and sensor systems are available 24 hours a day, 7 days a week for emergency response. Any EPA onscene coordinator can activate ASPECT. A phone call gets the system into the air in less than an hour.

ASPECT is a time and cost-effective response tool. It is based out of EPA Region 7's office in Kansas City, Kan., and can deploy to any part of the continental United States in less than nine hours.